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Command Decision-making aided by Dynamic Sociography

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Introduction:

Command and control operations became increasingly more complex if not chaotic under real battle conditions. At the same time the importance of psychosocial factors in battle management operations increases. Thus the uncertainty of decision making is enhanced. The aim of our research is to augment the cognitive utility in command and control management processes, using new information technologies of dynamic sociometry for the analysis of systems, based on uncertain, ambiguous, and poorly defined elements.

Rationale:

Under NO PEACE, NO WAR conditions of contemporary conflicts, targeting is a substantial part of the process of decision making. Decision about targets for action has been performed nearly exclusively by intuition. This is still more valid in decisions including the aspects of psychosocial operations. Suitable objective methods of the analysis of target aiming are lacking.

Description of methods employed:

Babbouh in our laboratory developed a complex method of dynamic sociometry (or --graphy) based on fuzzy logic and graph theory. The method is a qualitative development of the classical Moreno's sociometry. In general, it can be used to the analysis of any system. We use it to analyses of social complexes (micro- to macrogroups) by evaluation of intra- or intergroup relations. The result is an objective description of subjective interpretation of relations within a complex system.

It is possible, using fuzzy sets, to compute degrees of appurtenance of qualitative data, and to express in this way the relations of elements (subjects, individuals, and groups) in a complex system. The final outcome of the analysis is presented in form of a map, where the distances represent social relations (near – positive, sympathetic, or distant – negative, aversive) and altitudes correspond to high or low social positions of elements in a system. The highest position

usually in the center of the group is that of the "STAR", the lowest, on its periphery, are those of "OUTSIDERS". An important position is that of the "BRIDGE". This is a subject with a rather mediocre position, but with prevailing positive relations. A bridge subject can play an important social role as a mediator among different elements of the complex, suitable to arrange coalitions and cooperation. To be more users friendly, the map is completed by isohypses. The configuration of the "social terrain" corresponds to the relations under analysis, the "slopes" or "valleys" representing obstacles, difficulties in mutual understanding and/or sentiments.

The reliability and validity of the method were tested under real conditions of the activities of our Center as the expert laboratory of the Chief of General Staff of the Czech Army.

Results obtained:

Reliability and validity of the method were tested with success in a group of three subjects during an experimental simulated space orbital mission (changes during 153 days of social deprivation).

The method was verified on a complex group of groups in the whole Czech Air Force.

Preliminary results of these two mentioned real situations were referred elsewhere.

This year we analyzed relations during the Kosovo conflict on the level of macrosocial processes by the aid of a dynamic sociometric model.

Expeditionary units of Army of Czech Republic operate in the Bosnia and Kosovo regions as a part of the NATO forces. Taking the post-hostilities period problems into account, the knowledge about psychosocial conditions, local or regional, is much needed. At the same time it is important to lay down interpretation of a possible future development of the strategic situation in its broadest aspects.

Social relations of all macro-groups participating in the conflict were evaluated using heuristic approach and formed into a sociometric matrix. On its base the sociomap of their relations was constructed (Fig. 1). As seen from the map, NATO, Russians and Milosevic assume the most important social positions.

The prognostic value of dynamic sociometry becomes apparent if used as a model (Fig. 2). When the influences of NATO, Russians and Milosevic were eliminated under simulated conditions, the whole social complex of the Kosovo conflict participants, representing a relatively homogenous situation as yet, disintegrated into three separate groups: two extremes (the Serb grouping and the Albanian one) and one central (Montenegrins).

Relatively deep "valleys", separating the inimical parties, witness deep discrepancies. Without doubt, if the external pressures of NATO, Russians and Milosevic would be absent, an immediate blowing up of hostilities and violence would result.

An important problem is the verification of similar social models. This can be accomplished in two ways:

- (1) Taking intuitively into account some logic of events.
- (2) In comparison with real evolution. In this relation I should like to emphasize that this prognosis was accomplished on Oct. 31st 1999.

Conclusions:

Dynamic sociometry makes a deep analysis of internal and external relations of any system possible, pointing towards weak spots in system's relations, asking in social systems for the leading "Star" or neglected "Outsider" within the system, respective for the "Bridge" only. It is applicable to any intricate, uncertain and ambiguous complex system whatsoever.

Understanding human relations using sociomapping proved in practice as a potent prognostic aid. We emphasize that the use of dynamic sociometry is not limited to psychosocial events only. The sociomap is a reliable and valid model of complex situations. It is possible to demonstrate the expected future course of events resulting from command decision making under extremal, poorly defined and uncertain situations.

Legend Figure 1 and 2

FIG. 1: Sociomap of the situation in Kosovo, October 1999

Legend:

NATO – NATO forces
RUS – Russian Units
Mil – Milosevic Party

Alb – Albanian Republic
Rug – Rugovoi Party
UCK – Kosovo Liberation Army
Bos - Boshniaks

MD – Montenegro Democrats
MAC – Macedonian Republic
SD – Serb Democratic Parties

MAD – Montenegro Antidemocratic Parties
SAD – Serb Antidemocratic Parties
SARM – Serbian Army

FIG. 2.: Simulated situation in Kosovo October 1999, after exclusion of Milosevic, Russia and NATO forces.

Fig. 1: Sociomap of the situation in Kosovo, October 1999 (see legend)

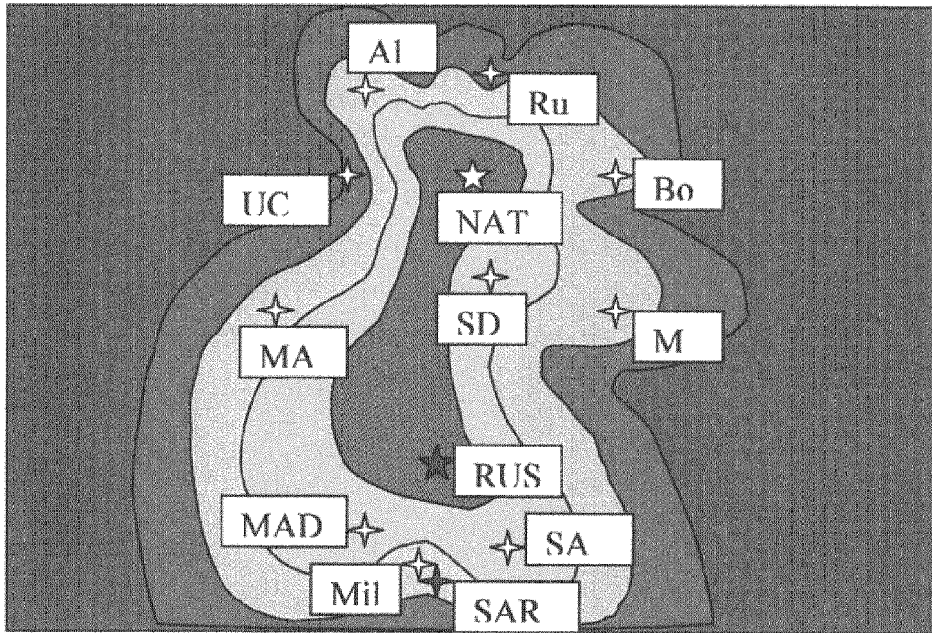


Fig. 2: Simulated situation in Kosovo October 1999, after exclusion of Milosevic, Russia and NATO forces.

